



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
ROBERT JOHN BLYTHE, et al.

Serial No.: 09/485,034

Filed: February 2, 2000

For: **CONSTRUCTION
MATERIALS**

Date of Last Office Action:
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Examiner: J. Gray

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APPEAL BRIEF UNDER 37 CFR §1.192

Assistant Commissioner For Patents
Washington, D.C. 20231

Dear Sir:

On October 22, 2002, Appellants appealed to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner of April 23, 2002, finally rejecting claims 1-26 of the subject application. What follows is Appellants' Appeal Brief in accordance with 37 C.F.R. §1.192(a).

I. REAL PARTY IN INTEREST (37 C.F.R. §1.192(c)(1))

The real party in interest in this appeal is the assignee, Sovereign Rubber Limited.

II. RELATED APPEALS AND INTERFERENCES (37 C.F.R. §1.192(c)(1))

There are no other appeals and/or interferences that will directly affect, or will be directly affected by, or will have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS (37 C.F.R. §1.192(c)(3))

The status of the claims set forth after the Final Office Action mailed was, and is, as follows:

Allowed claims: none

Rejected claims: 1-26

The present appeal is directed specifically to claims 1-26.

IV. STATUS OF THE AMENDMENTS (37 C.F.R. §1.192 (c)(4))

Rejections of Record

Claims 1, 7, 10, 15, 17, 19, and 23-26 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Thelen, et al.* (U.S. Patent No. 4,564,310) or Japanese Patent Abstract No. JP 4048927.

Claims 1-26 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Bowers* (WO 92/19669).

In an attempt to overcome the outstanding rejections, Appellants filed an After Final Response under 37 C.F.R. §116 on August 22, 2002. The After Final Response addressed the prior art rejection issued by the Examiner in the final rejection.

An Advisory Action was then issued by the Examiner indicating that the After Final Response did not place the application in condition for allowance. The Examiner further indicated that all of the rejections were being maintained.

V. SUMMARY OF THE INVENTION 37 C.F.R. §1.192 (c)(5)

The Present Application

The essence of the present invention is the use of a thermoplastic elastomer, referred to in the specification as "TPE." The nature of the thermoplastic elastomer is

disclosed at page 3, line 26 to page 4, line 17. It is to be noted, especially in view of the documents cited by the Examiner, that the term "TPE" is not equivalent to "SBR." As is known in the art, the term "SBR" is an abbreviation, not for styrene-butadiene polymers in general, but for the particular type of styrene-butadiene copolymer produced by a process of random polymerization of styrene and butadiene. SBR is inevitably used in a vulcanized (cross-linked) form. Without cross-linking, it does not possess elastomeric properties.

Thermoplastic elastomers, on the other hand, do not require cross-linking to achieve elastomeric properties. Rather, elastomeric properties may be diminished by cross-linking. The nature of this thermoplasticity is referred to in the specification at page 4, lines 7-17. A general definition of thermoplastic elastomers may be found on page 400 of the Kirk-Othmer "Concise Encyclopedia of Chemical Technology." A copy of that page is enclosed herewith. As defined, Thermoplastic resins

"...are polymeric structures that soften or melt at elevated temperatures allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin."

This general statement does not apply to the polymers generally referred to as SBR. The different nature of SBR and thermoplastic elastomers, such as Kraton™ 1101 and Kraton™ 1107 is shown in Table 1 on the enclosed page 400. Also enclosed is a copy of the Kirk-Othmer full article on thermoplastic elastomers, pages 315-337. This article more fully defines the unique characteristics of thermoplastic elastomers.

VI. ISSUES (37 C.F.R. §1.192(c)(6))

Whether claims 1, 7, 10, 15, 17, 19, and 23-26 are anticipated under 35 U.S.C. §103(a) by *Thelen, et al.* (U.S. Patent No. 4,564,310) or Japanese Patent Abstract No. JP 4048927.

Whether claims 1-26 are anticipated under 35 U.S.C. §102(b) by *Bowers* (WO 92/19669).

VII. GROUPING OF CLAIMS (37 C.F.R. §1.192(c)(7))

Appellants submit that claims 1-26 should stand or fall together.

VIII. ARGUMENTS (37 C.F.R. §1.192 (c)(8))

Rejection Under 35 U.S.C. §102(b)

The Examiner has rejected claims 1, 7, 10, 15, 17, 19, and 23-26 under 35 U.S.C. §102(b) as being anticipated by *Thelen, et al.* (U.S. Patent No. 4,564,310) or Japanese Abstract No. JP 4048927. The Examiner's reasoning in the Office Action of July 3, 2001, provided at page 3 of the Office Action (and incorporated into the Final Rejection of April 23, 2002) is as follows:

"Thelen and the abstract construction material and wearing courses essentially as claimed by applicants, said construction material comprising an agglomerate of granules of a thermoplastic block copolymer elastomer, the granules are inherently angular or multi-facet granules, and an underlying bulk layer.

Therefore, the teachings of *Thelen* and the abstract anticipate the invention as claimed in present claims 1-2, 7, 10, 15, 17, 19, and 23-26."

The Examiner has also rejected claims 1-26 under 35 U.S.C. §102(b) as being anticipated by *Bowers* (WO 92/19669). The Examiner's reasoning in the Office Action of July 3, 2001, provided at page 3 of the Office Action (and repeated in the Final rejection of April 23, 2002) is as follows:

"Bowers teaches a polymeric material of the type contemplated by applicants, wherein said polymeric material can be used a construction material and in the formation of a wearing course, said material comprising agglomerates of granules of a thermoplastic elastomer, such as a block copolymer of the styrene type, and a polyurethane binder which substantially fills the interstices between the granules, wherein the particle size is within applicants claimed range. In addition, Bowers teaches an underlying bulk layer having a thickness within the claimed range. Properties such as the granules being angular or multi-facet granules are inherent.

As a result, Bowers anticipates the invention as claimed in the present claims."

Applicants respectfully traverse these rejections.

The Present Invention

This Appeal Brief addresses a key distinction between the present claims and the cited references, particularly the use of a thermoplastic elastomer, referred to in the specification as "TPE." The nature of the thermoplastic elastomer is disclosed at page 3, line 26 to page 4, line 17 of the present application's specification. It is to be noted that the term "TPE" is not equivalent to "SBR." As is known in the art and further discussed in the declaration submitted with the After Final Response of August 22, 2002, the term "SBR" is an abbreviation, not for styrene-butadiene polymers in general, but for the particular type of styrene-butadiene copolymer produced by a process of random polymerization of styrene and butadiene. SBR is inevitably used in a vulcanized (cross-linked) form. Without cross-linking, it does not possess elastomeric properties.

Thermoplastic elastomers, on the other hand, do not require cross-linking to achieve elastomeric properties. Rather, elastomeric properties may be diminished by cross-linking. The nature of this thermoplasticity is referred to in the specification at page 4, lines 7-17. A general definition of thermoplastic elastomers may be found on page 400 of the Kirk-Othmer "Concise Encyclopedia of Chemical Technology." A copy of that page

was previously submitted in the Response to the Office Action of July 3, 2001 and the final rejection of April 23, 2002. As defined, Thermoplastic resins

“...are polymeric structures that soften or melt at elevated temperatures allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin.”

This general statement does not apply to the polymers generally referred to as SBR. The different nature of SBR and thermoplastic elastomers, such as Kraton™ 1101 and Kraton™ 1107 is shown in Table 1 on previously submitted page 400. Also enclosed is another copy of the previously submitted Kirk-Othmer pages 15-20 full article on thermoplastic elastomers. This article more fully defines the unique characteristics of thermoplastic elastomers.

The References of Record

Anticipation requires disclosure of each of the elements of the claimed invention or their equivalents in a single prior art reference. *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983), *cert. denied*, 105 S.Ct. 172 (1984). Anticipation by a printed publication occurs when the elements of the claimed invention are contained within the four corners of a single prior art reference. *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1767-1768 (Fed. Cir. 1987), *cert. denied*, 108 S.Ct. 702 (1988).

With reference to the *Thelen* patent, this document discloses a porous resilient paving system comprising four layers, the lowermost layer being of mineral aggregate and the other, superimposed, three layers comprising **vulcanized rubber** particles or fibers. The vulcanized nature of the particles or fibers is emphasized in column 3, lines 13-17, where it states that a preferred source of those particles or fibers is recycled tires. In light of the above discussion and the declaration submitted hereinbefore, it is clear that Thelen's vulcanized rubber is not a thermoplastic elastomer. Applicants respectfully submit that the

Thelen patent does not anticipate the present application.

With reference to *Bowers* (WO 92/19669), the Bowers application discloses a method of preparing a sports surface using:

- (a) a particulate material coated with a liquid curing agent, and subsequently treating that material with
- (b) a liquid polymer or prepolymer in situ.

The PCT application further provides at page 5, line 22, for the use of SBR and PU. Moreover, on page 3, lines 10-11 the PCT application discloses "the particulate material may be a synthetic or natural rubber crumb." There is no reference or suggestion in the specification to use a thermoplastic elastomer. In light of the above discussion and the declaration submitted hereinbefore, it is submitted that the reference to SBR does not suggest the thermoplastic material limitation of the claims. Applicants respectfully submit that the present application is not anticipated by the PCT application.

With reference to the Japanese Abstract No. JP 04048927, the abstract discloses preparation of an elastic playing surface, for example a tennis court, comprising:

- (a) applying to a base a coarse granular rubber layer having cavities in the inner part,
- (b) then applying a fine granular rubber layer; and
- (c) then applying a facing layer.

The Japanese abstract suggest that the layer (a) be, for example, pulverized waste tire, natural rubber, or styrene-butadiene rubber. The Japanese abstract also teaches that the fine material of (b) can be the same material as that of (a). The facing layer of (c) is described, for example, as a polyurethane or styrene-butadiene rubber. The use of the term "rubber" clearly indicates a vulcanized material and not a thermoplastic elastomer. In particular, there is no disclosure in the abstract of the use of any thermoplastic

elastomers. In light of the above discussion and the declaration mentioned hereinabove, the Japanese abstract provides no motivation to use thermoplastic elastomers. Applicants respectfully submit that the present application is not anticipated by the Japanese abstract.

The Claims Distinguish Patentably Over the References

A declaration signed by the inventor traversing the Examiner's §102(b) rejections over Thelan, JP No. 4048927, and WO 92/19669 in accordance with 37 C.F.R. § 1.132 was submitted in the After Final Response filed on August 22, 2002. As will become apparent upon an examination of the declaration, the present claims distinguish patentably over the references of record.

As the declaration demonstrates, the references of record fail to suggest the use of thermoplastic elastomers, such as those claimed in the present application, instead suggesting various other, particulate materials. The references of record require vulcanizable materials, whereas the thermoplastic elastomers of the present application could lose many of their desired properties if vulcanized. Rather than suggesting the presently claimed thermoplastic material, the cited references teach against thermoplastic material in favor of vulcanized materials. Accordingly, Applicants submit that claims 1-26 differ patentably over the references of record.

CONCLUSION

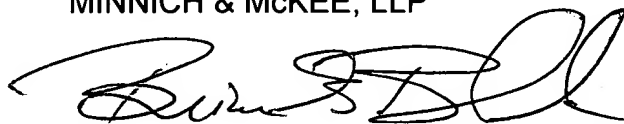
It is submitted that claims 1-26 are patentable over the cited art for the reasons set forth hereinabove.

The Commissioner is hereby provided to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 06-0308.

Appellants respectfully request that the Examiner's rejections be reversed.

Respectfully submitted,

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Certificate of Mailing Under 37 CFR 1.8

I hereby certify that this **APPEAL BRIEF** in connection with U.S. Patent Application Serial No. 09/485,034 is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, BOX BOARD OF PATENT APPEALS AND INTERFERENCES, Washington, D.C., 20231, on this 23rd day of December, 2002.



Caroline A. Schweter

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IX. APPENDIX OF CLAIMS (37 C.F.R. §1.192(c)(9))

1. A construction material for use as, or in, a wearing course, which comprises an agglomerate of granules of a thermoplastic elastomer.
2. A construction material according to claim 1, wherein the granules are angular or multi-facet granules.
3. (Amended) A construction material according to claim 1, wherein the granules have smooth surfaces.
4. (Amended) A construction material according to claim 1, wherein the granules are substantially free from dust.
5. (Amended) A construction material according to claim 1, wherein substantially all of the granules are in the size range of 0.5mm to 10mm.
6. (Amended) A construction material according to claim 5, wherein substantially all of the granules are in the size range fro 1mm to 4mm.
7. (Amended) A construction material according to claim 1, wherein the thermoplastic elastomer is a block copolymer.
8. (Amended) A construction material according to claim 7, wherein the block copolymer comprises a styrene block.
9. (Amended) A construction material according to claim 1, wherein the thermoplastic elastomer is one or more of:
 - a styrene-butadiene-styrene (SBS) block co-polymer,
 - a styrene-isoprene-styrene (SIS) block copolymer,

a styrene-ethylene-butadiene-styrene (SEBS) block copolymer.

10. (Amended) A construction material according to claim 1, wherein the thermoplastic elastomer is a polyurethane, polyetherester, polyamide, polyetheramide or an elastomeric alloy.

11. (Amended) A construction material according to claim 1, wherein the which includes a pigment.

12. (Amended) A construction material of claim 1, wherein the granules are agglomerated together by means of a binder.

13. A construction material according to claim 12, wherein the binder substantially fills the interstices between the granules.

14. (Amended) A construction material, according to claim 1, wherein the granules are agglomerated together by having been melded together.

15. (Amended) A granular thermoplastic elastomer suitable for use in the construction material, according to claim 1, wherein the granules of thermoplastic elastomer are angular or multi-facet granules.

16. A granular thermoplastic elastomer according to claim 15, wherein the thermoplastic elastomer is a blend of a major proportion of polypropylene and a minor proportion of an ethylene-propylene copolymer, the blend being without any substantial amount of cross-linking.

17. (Amended) A composition suitable for the preparation of a construction material as claimed in claim 1, the composition comprising:

- (a) a first component comprising a granular thermoplastic elastomer; and
- (b) a second component comprising a binding agent for the granules.

18. A composition according to claim 17, wherein the binding agent is a polyurethane binder.

19. (Amended) A wearing course comprising a laid layer of a construction material as claimed in claim 1.

20. A wearing course according to claim 19, which has a thickness in the range 1cm to 10cm, especially 2cm to 6cm.

21. (Amended) A wearing course according to claim 19, wherein the construction material has been compacted after laying.

22. (Amended) A wearing course according to claim 19, which has been laid in direct contact with the ground.

23. (Amended) A wearing course according to claim 19, wherein said layer is supported by an underlying bulk layer.

24. A wearing course according to claim 23, wherein the bulk layer comprises a rubber in granular form.

25. A wearing course according to claim 24, wherein the granules of rubber have been agglomerated by means of a binder.

26. A wearing course according to claim 23, wherein the bulk later has a thickness of up to 10cm, especially from 2cm to 6cm.